

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 1 023-224W001	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/US 03/34243	International filing date (day/month/year) 29/10/2003	(Earliest) Priority Date (day/month/year) 31/10/2002
Applicant MEDTRONIC, INC.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 7 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☒ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

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☐ None of the figures.

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Box III TEXT OF THE ABSTRACT (Continuation of item 5 of the first sheet)

A clinician or patient uses a control device (12) to manipulate at least one neurostimulation parameter. A mapping system (14) uses a calibrated map to map the directional output of the control device (12) to values of at least one stimulation parameter to allow intuitive parameter control.

In spinal cord stimulation (36A, 36B, 38, SCS), the user manipulates a parameter to effect the location and/or strength of paresthesia.

In exemplary embodiments, the parameter values are combinations of electrodes (44) selected such that a direction of movement of paresthesia experienced by the patient corresponds to a direction of manipulation of a directional controller of the control device (12). The mapping system may celebrate the map based on patient paresthesia information.

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A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 A61N1/34 A61N1/05

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

WPI Data, EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 052 624 A (MANN CARLA M) 18 April 2000 (2000-04-18)	16-26
Y	column 2, paragraph 5 column 4 -column 5 column 7, paragraph 4 column 8, paragraph 6 -column 9, paragraph 1 column 10, paragraph 2 - paragraph 3 column 12, paragraph 4	27
Y	US 2001/007950 A1 (FLOWER KIM RANDAL ET AL) 12 July 2001 (2001-07-12) paragraph '0156! - paragraph '0158!; figure 7	27
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- * & * document member of the same patent family

Date of the actual completion of the international search

12 March 2004

Date of mailing of the international search report

22/03/2004

Name and mailing address of the ISA

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C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 01 83028 A (MEDTRONIC INC) 8 November 2001 (2001-11-08) * abstract * page 3 -page 4 ----	16-27
A	US 5 983 140 A (IGNATOSKI MICHAEL ET AL) 9 November 1999 (1999-11-09) * abstract * ----	16-27
A	US 4 793 353 A (BORKAN WILLIAM N) 27 December 1988 (1988-12-27) * abstract * -----	16-27

FURTHER INFORMATION CONTINUED FROM PCT/SA/ 210

Continuation of Box I.2

Claims Nos.: 28

Since independent claim 28 refers to claims 1-15 which relate to methods of therapy of the human or animal body by therapy (Rule 39.1(iv) PCT), independent claim 28 is unclear and cannot be searched.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

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Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 1-15, 28
because they relate to subject matter not required to be searched by this Authority, namely:
Rule 39.1(iv) PCT - Method for treatment of the human or animal body by therapy
2. ☒ Claims Nos.: 28
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

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Information on patent family members

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 6052624	A	18-04-2000	US 6609032 B1	19-08-2003
			US 6393325 B1	21-05-2002
			US 2004034394 A1	19-02-2004
US 2001007950	A1	12-07-2001	US 6308102 B1	23-10-2001
WO 0183028	A	08-11-2001	EP 1276538 A1	22-01-2003
			WO 0183028 A1	08-11-2001
			US 2003036783 A1	20-02-2003
US 5983140	A	09-11-1999	US 5861017 A	19-01-1999
			US 6424868 B1	23-07-2002
			EP 1017448 A1	12-07-2000
			JP 2002510224 T	02-04-2002
			WO 9855177 A1	10-12-1998
US 4793353	A	27-12-1988	US 4459989 A	17-07-1984
			CA 1259664 A1	19-09-1989
			DE 3274804 D1	05-02-1987
			EP 0072611 A1	23-02-1983
			US 4612934 A	23-09-1986